

AMENDMENTS TO THE CLAIMS

Claims 1-54 (cancelled)

55. (Currently Amended) A polyethylene composition comprising a low-molecular-weight (LMW) ethylene homopolymer component and a high-molecular-weight (HMW) ethylene interpolymer component, wherein the LMW component is characterized as having a molecular weight distribution, MWD^L , of less than about 8, wherein the same catalyst system is used to make the LMW component and the HMW component.

56. (Previously Presented) The polyethylene composition of claim 55, wherein the polyethylene composition is characterized as having a bimodal molecular weight distribution, and a ductile-brittle transition temperature, T_{db} , of less than -20°C.

57. (Previously Presented) The polyethylene composition of claim 55, wherein the LMW component has a density of greater than 0.940 g/cm³.

58. (Previously Presented) The polyethylene composition of claim 55, wherein the LMW component has an I_2 value ranging from about 30 to about 1000 g/10 minutes as determined in accordance with ASTM D-1238 (Condition 2.16 kg/190°C).

59. (Previously Presented) The polyethylene composition of claim 55, wherein the HMW component has a density ranging from about 0.905 to about 0.955 g/cm³.

60. (Previously Presented) The polyethylene composition of claim 55, wherein the HMW component has an $I_{21.6}$ value ranging from about 0.1 to about 15 as determined in accordance with ASTM D-1238 (Condition 21.6kg/190°C).

61. (Previously Presented) The composition of claim 55, wherein the HMW is characterized by a unimodal molecular weight distribution, MWD^H of about 8 or less.

62. (Previously Presented) The composition of claim 61, wherein M_w^H/M_w^L is about 1.3 or higher, wherein M_w^H is the weight average molecular weight of the high molecular weight component and M_w^L is the weight average molecular weight of the low molecular weight component..

63. (Previously Presented) The composition of claim 55, wherein MWD^L ranges from about 2 to about 5.

64. (Previously Presented) The composition of claim 61, wherein MWD^H ranges from about 2 to about 5.

65. (Previously Presented) The polyethylene composition of claim 55, wherein the polyethylene composition is characterized as a molecular weight distribution (MWD) as defined by the ratio of M_w/M_n of about 30 or less, and the HMW component is characterized as having a substantially uniform comonomer distribution or a reverse comonomer distribution.

66. (Previously Presented) The composition of claim 65, wherein the HMW component has a reverse comonomer distribution characterized as the molar comonomer content of interpolymer fractions having a M_w greater than or equal to 300,000 g/mole being at least 25 percent higher than the molar comonomer content of interpolymer fractions having a M_w of less than or equal to 100,000 g/mole.

67. (Previously Presented) The composition of claim 55, wherein the T_{db} is ranges from -25°C. to about -50°C

68. (Previously Presented) The composition of claim 55, wherein the composition is characterized as having an $I_{21.6}/I_5$ ratio of less than or equal to about 30, as determined in accordance with ASTM D-1238 (Condition 21.6 kg/190°C and Condition 5 kg/190°C).

69. (Previously Presented) The composition of claim 55, wherein the composition is characterized as having an $I_{21.6}$ ranging from about 3 to less than about 50 g/10 min., as determined in accordance with ASTM D-1238 (Condition 21.6 kg/190°C).

70. (Previously Presented) The composition of claim 55, wherein the composition is characterized as having an I_5 ranging from about 0.05 to about 2 g/10 min., as determined in accordance with ASTM D-1238 (Condition 5 kg/190°C).

71. (Previously Presented) The composition of claim 55, wherein the composition is characterized as having a M_{v1}/M_{v2} ratio of less than or equal to 0.6, where M_{v1} is the viscosity average molecular weight of the LMW high density component and M_{v2} is the viscosity average molecular weight of the HMW interpolymer component, as determined using ATREF-DV analysis.

72. (Previously Presented) The composition of claim 55, wherein the composition is manufactured using a catalyst system comprising a metallocene catalyst system and/or a Ziegler-Natta catalyst system.

73. (Previously Presented) The composition of claim 72, wherein the metallocene catalyst

system comprises a constrained geometry catalyst.

74. (Previously Presented) The composition of claim 72, wherein the catalyst system comprises an activator which has been bonded or fixed to a support prior to the addition of the metallocene catalyst.

75. (Previously Presented) The composition of claim 74, wherein the activator is a boron-containing compound or an alumoxane.

76. (Previously Presented) The composition of claim 66, wherein the reverse comonomer distribution is characterized by a comonomer distribution gradient in the range from about 0.0001 to about 0.1.

77. (Previously Presented) The composition of claim 66, wherein the reverse comonomer distribution is characterized by a comonomer distribution gradient in the range from about 0.001 to about 0.02.

78. (Previously Presented) The composition of claim 55, wherein the M_w/M_n of the composition is between about 5 and about 20.

79. (Previously Presented) An article of manufacture made from the composition claim 55.

80. (Previously Presented) The article of claim 79, wherein the article is a gas pipe or a water pipe.

81. (Withdrawn) A method of increasing the service life of a pipe comprising using the polyethylene composition claim 55 to form the pipe.

82. (Withdrawn) A polyethylene composition comprising a low-molecular-weight (LMW) ethylene homopolymer component and a high-molecular-weight (HMW) ethylene interpolymer component, wherein the polyethylene composition is characterized as having a bimodal molecular weight distribution, the molecular weight distribution as defined by the ratio of M_w/M_n is about 30 or less, and the HMW component is characterized as having a reverse comonomer distribution.